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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 10/12/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/402,751

Applicant(s)

HENNINGSEN, HENNING

Examiner

Regina Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The disclosure is objected to because of the following informalities: "Example" (page 11, line 7) should be change to --Detailed description of the invention--. On pages 3-10 of the specification, claim numbers should be deleted from the disclosure since the claim number can be changed in the future.

Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "face shape of the light valves forms one or more hexagons" (claim 9), "a face shape of the light valves is arranged on one or more illumination heads" (claim 12), "the illumination head comprises a rod movable relative to the illumination face in a single progressing movement transverse to the direction of the rod" (claim 13) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 12, 13, 18 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification merely repeats the limitation of claims 12, 13, 18 on pages 8-10 under the "Summary of the invention" section. The detail description does not provide support for "a face shape of the light valves is arranged on one or more illumination heads" (claim 12), "each illumination head and the illumination face being adapted to perform a relative movement across an illumination area" (claim 13), and "the light guides of the illumination unit are so arranged with respect to the light valve arrangement that the optical energy fed to a subset of light valves

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does not differ significantly from each other when the subsets of light valves illuminate adjacent areas or areas close to each other on the illumination face” (claim 18) as claimed.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 12, 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 12, it is unclear and confusing as to how “a face shape of the light valves is arranged on one or more illumination heads” and how “each illumination head and the illumination face being adapted to perform a relative movement across an illumination area”.

7. Claim 13 recites the limitation “the illumination head” in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claims 1; 3-5, 8, 14, 15, 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Gulick (US. PAT. NO. 5,838,865).

As to claim 1, Fig. 6 of Gulick discloses an illumination unit having a plurality of light emitters comprised of light guides (bundles 76A-76D) arranged to illuminate an illumination face (70) via a light valve arrangement (LCD array 80A-80D). Gulick teaches each LCD array (80A for example) having a plurality of pixels (this corresponds to a light valve arrangement comprising a plurality of electrically controlled light valves), and each light guide (e.g., 76A) being arranged to illuminate a plurality of light valves (plurality of pixel in each LCD array).

As to claim 3, Gulick teaches a micro lens (84A-84D) arrange between the light valves (LCD) and the illuminations face.

As to claim 4, Gulick teaches the optical light comprises optical fibres (62 shown in Figs. 4 and 5).

As to claim 5, Figs. 2 and 3 of Gulick teaches the light source comprising a short arc gap lamp.

As to claim 8, Fig. 3 of Gulick teaches a collimation lens (relay lens 34) arranged between the light emitter and the face shape of the light valves.

As to claim 14, Fig. 6 of Gulick teaches a optical means (lens 84) is provided between the light valve arrangement (80) and the illumination face (70).

As to claim 15, Gulick teaches the LCD light valves.

As to claim 18, Gulick teaches light guides are arranged with respect to the light valve arrangement such that the optical energy of each area of light valves does not differ significantly from each other (see Fig. 6).

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As to claim 19, Fig. 3 of Gulick teaches light receiving ends of the light guides (64) are gathered in one bundle which directly receives light from a reflector 26 optically connected to the lamp (30).

As to claim 20, Gulick teaches one light emitter or light guide illuminating a plurality of light valves (pixels array).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick.

Gulick discloses the illuminating unit comprising a short arc gap lamp. Gulick does not disclose the short arc gap lamp comprises light receiving optical light guides arranged with an angle of $\pm 75^{\circ}$ with respect to the equatorial axis of the lamp. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gulick' short arc gap lamp to have light receiving optical light guides arranged as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick in view of Suganuma (US. PAT. NO. 6,249,381).

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As to claim 7, Gulick does not disclose the light source comprising a laser source.

However, Suganuma teaches an illuminating device for producing an illuminating light beam for a display using a laser source (10 in Fig. 8). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light source of Gulick to have a laser source as taught by Suganuma since the laser light beams produce a light beam which has high intensity and is excellent in directionality (col. 17, lines 37-39 of Suganuma).

13. Claims 2, 9-11, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick in view of Yamazaki et al (US. PAT. NO. 6,678,023 hereinafter Yamazaki).

As to claims 2, 21, Gulick does not disclose the illumination unit having one micro lens arranged with respect to each light valve. However, Yamazaki teaches a pixel arrangement of a display device comprising micro lens arrays, each of micro lenses constituting the micro lens array 106 has a size equal to one pixel of the LCD panel 107 (see Fig. 1 and col. 8, lines 28-30, 40-43). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the illumination unit of Gulick to have one micro lens arranged with respect to each light valve as taught by Yamazaki such that a liquid crystal projector in which light is effectively used and an excellent picture can be obtained is provided.

As to claim 9, Fig. 3 of Yamazaki teaches the face shape of the light valves (pixels) forms one or more hexagons.

As to claim 10, Fig. 3 of Yamazaki shows that the pixels in the second row are offset from the first row (this corresponds to the light valves being disposed at a given mutual distance, and the rows being mutually offset in the transverse direction).

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As to claim 11, Figs. 1-3 of Yamazaki teaches the projection of all the individual light valves in the display screen.

As to claim 22, Fig. 6 of Gulick teaches a second micro lens arrangement (84A-84D) arranged between the light valves (80A-80D) and the illumination face (70).

14. Claims 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick in view of Lee (US. PAT. NO. 3,553,364).

Gulick does not disclose the light valves comprising electromechanical light valves. Lee teaches a electromechanical light valve device relating to light transmission or light reflection control, and more particularly to a light valve for controlling the transmission or the reflection of light by means of an electrostatic charge. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light valves of Gulick to comprising an electromechanical light valves as taught by Lee so as to provide a light valve isolated from surrounding electrostatically generated forces, thereby reducing "crosstalk". (col. 1, lines 35-36 of Lee).

Response to Arguments


15. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (703) 305-4719. The examiner can normally be reached on Monday-Friday from 9AM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


REGINA LIANG
PRIMARY EXAMINER
ART UNIT 2674

RL
10/5/04